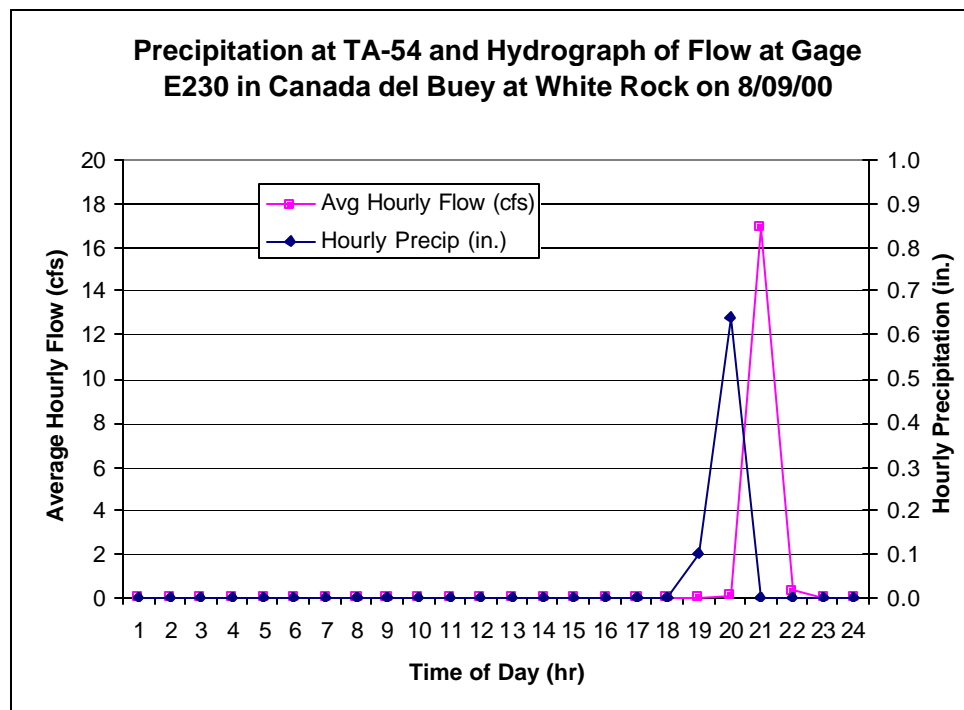


Map of the Pajarito Plateau showing precipitation recorded on August 09, 2000. The map displays contour lines for precipitation in inches, with a contour interval of 0.1. Key locations include Santa Clara Canyon, Santa Fe National Forest, Los Alamos National Laboratory, and White Rock. A legend indicates symbols for Remote Area Weather Station, LANL Meteorological Station (TA-74), and Runoff Sample Collection Site. A scale bar shows 0 to 2 miles, and a north arrow is present.

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The flow event was recorded at stream gage E230 in Cañada del Buey at White Rock, which is located upstream of State Route 4 and White Rock. The average hourly flow at this stream gage for August 9 is shown on Figure 2. The peak flow volume of 32 cfs was recorded at 20:35 on August 9.



**Figure 2. Flow measured at stream gage E230 in Cañada del Buey on August 9, 2000**

Automated stormwater runoff samples were collected at stream gage GS E230 during the runoff event at 19:53 and 20:03 on the evening of August 9. Unfiltered samples were collected for analysis. The samples were sent to General Engineering Laboratories, Inc. in Charleston, South Carolina for analysis for radionuclides, general inorganic constituents, SVOCs and PCBs. Preliminary results of the available analyses are shown in Table 1. Also shown on Table 1 are the maximum values of constituents that have been recorded previous to the Cerro Grande Fire in unfiltered stormwater runoff at LANL (1995 through 1999), the DOE Public Dose Derived Concentration Guides (DCGs), and the Environmental Restoration Project's Ecological Screening Level (ESL) for water, for comparison purposes. Results of gamma spectroscopy are reported only for Am-241, Cs-137, and other radionuclides that were detected in concentrations above the laboratory method detection limit.

A summary of the preliminary results of the analyses is shown in Figure 3. The results are compared with the historic maximum values obtained for unfiltered runoff, the DOE DCGs and the ESLs. The preliminary results of the analyses for radionuclides in the stormwater runoff samples collected on August 9, 2000 are below historic maximum values except for Pu-238, which was measured at a concentration 2.86 pCi/L, compared to the historic maximum value in unfiltered runoff of 1.53 pCi/L. The preliminary results of the unfiltered runoff samples are below the available DOE DCGs, except for gross alpha, which was measured at 71.3 pCi/L, above the DOE DCG of 30 pCi/L. The preliminary results are below the ESLs except for Th-228, Th-232, and U-238, which were measured in concentrations of 44.7, 36.9, and 26.9 pCi/L, respectively, above the respective ESLs of 5.9, 7.9, and 25 pCi/L.

The total suspended solids contained in the samples collected August 9 at gage E230 are not yet available. This information is required in order to calculate the radionuclide concentration in the suspended sediment fraction.

## References

Los Alamos National Laboratory (LANL), 2000, "Post-Cerro Grande Fire Environmental Sampling Data: Baseline Ash and Muck Samples," Environmental Restoration (ER) Project report LA-UR 00-4362, September 2000, ER2000-0485. Preliminary data also presented on LANL ER Web site located at <http://erproject.lanl.gov/Fire/Data/datahome.html>

Ryti, R. T., P. A. Longmire, D. E. Broxton, S. L. Reneau, and E. V. McDonald, September 1998, "Inorganic and Radionuclide Background Data for Soils, Sediments and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory Report LA-UR-98-4847. (Ryti et al. 1998, 59730)

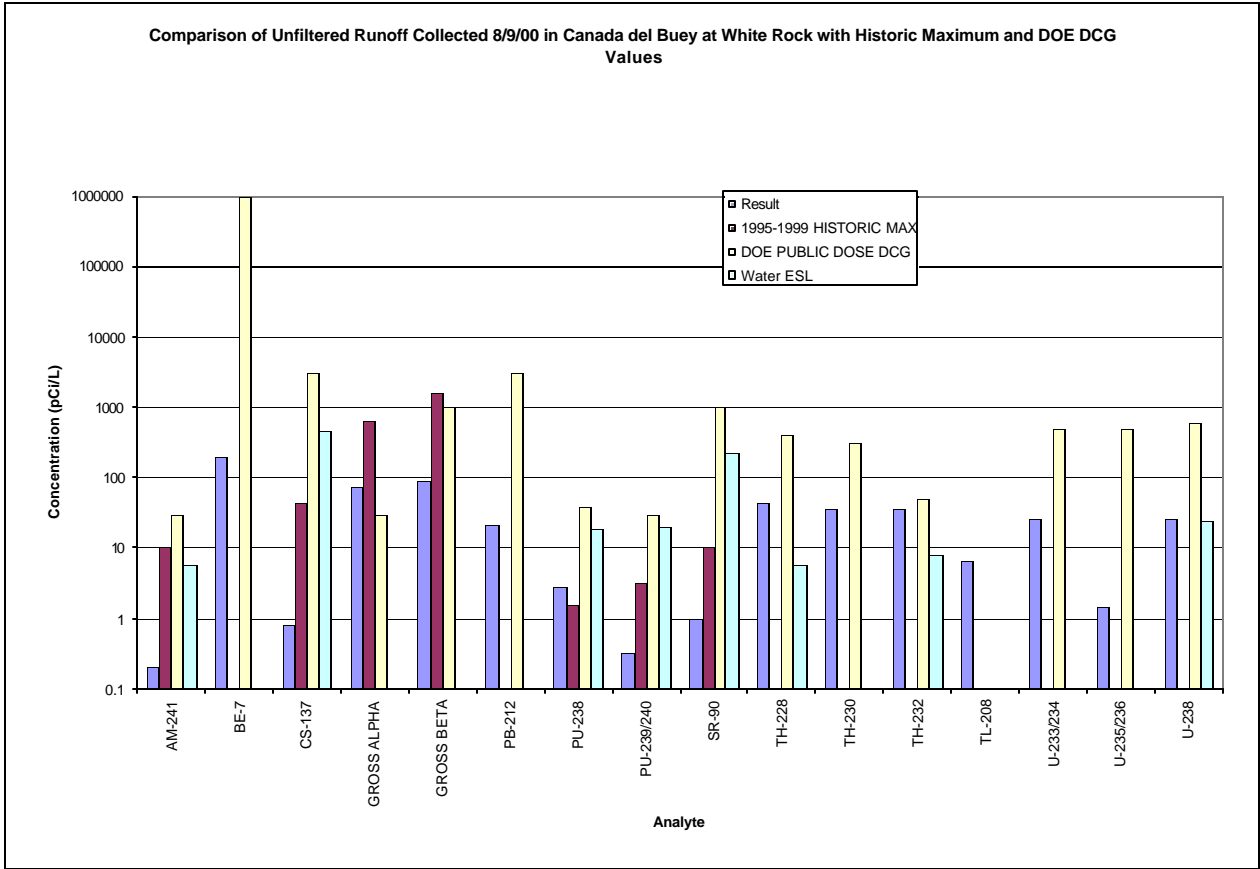


Figure 3. Comparison of runoff samples collected 8/09/00 in Cañada del Buey at White Rock with Historic Maximum, DCG, and ESL Values

**TABLE 1**  
**RADIOACTIVE SCREENING MEASUREMENTS IN STORMWATER RUNOFF IN CANADA DEL BUEY AT WHITE ROCK FROM AUGUST 9, 2000 RUNOFF EVENT**  
**DRAFT: DATA ARE PRELIMINARY**

Canyon	Gage	Location	Sample ID	Lab Sample ID	Collection Date	F/UF	Sample Type	Analyte	Result	Units	TPU	DL	METHOD	QUALIFIER	COMMENT	1995-1999 HISTORIC MAX	DOE PUBLIC DOSE DCG	Water ESL
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	AM-241	0.2	pCi/L	0.0644	0.054	ALPHA SPEC			10.288	30	5.8
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	BE-7	197	pCi/L	21	29.6	GAMMA SPEC				1000000	
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	CS-137	0.789	pCi/L	0.912	3.25	GAMMA SPEC	U		42.28	3000	470
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	GROSS ALPHA	71.3	pCi/L	20	3.62	GFPC			640.8	30	
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	GROSS BETA	90.7	pCi/L	13.2	4.69	GFPC			1637	1000	
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	PB-212	21.9	pCi/L	3.72	4.64	GAMMA SPEC				3000	
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	PU-238	2.86	pCi/L	0.419	0.049	ALPHA SPEC			1.5308	40	19
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	PU-239/240	0.325	pCi/L	0.0605	0.049	ALPHA SPEC			3.282	30	20
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	SR-90	-0.135	pCi/L	0.265	0.458	GFPC			10.312	1000	230
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	TH-228	44.7	pCi/L	3.43	0.791	ALPHA SPEC				400	5.9
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	TH-230	35.6	pCi/L	2.76	0.277	ALPHA SPEC				300	
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	TH-232	36.9	pCi/L	2.85	0.063	ALPHA SPEC				50	7.9
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	TL-208	6.44	pCi/L	2.18	2.99	GAMMA SPEC					
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	U-233/234	25.9	pCi/L	2.32	0.414	ALPHA SPEC				500	
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	U-235/236	1.45	pCi/L	0.308	0.415	ALPHA SPEC				500	
Cañada del Buey	E230	Cañada del Buey at White Rock	GS00083E230	29536005	9-Aug-00	UF	SAMPLE	U-238	26.9	pCi/L	2.4	0.522	ALPHA SPEC				600	25
									Sample		Natural U							
									U-234 %	0.477	3.43E-07							
									U-235 %	0.027	7.78E-09							
									U-238 %	0.496	3.37E-07							
									U-234/U-238	0.9628	1.02							
									U-235/U-238	0.0539	0.023							

A or M: Automated or Manual (Grab) Sample

F/UF: filtered/unfiltered

Uncert.: 1 Stand. Dev.uncertainty in result

MDA or MDC: analytical method detection limit

TPU: Total Propogated Uncertainty

DUP: Laboratory Duplicate

DL = Detection Limit

RL = Reporting Limit

DCG = Derived Concentration Guide

ESL = Ecological Screening Level

RSL = Residential Screening Level, for soil based on RESRAD code using 10 mrem/yr

BV = Background Value (95/95 UTL)

Comparison of Unfiltered Runoff Collected 8/9/00 in Canada del Buey at White Rock with Historic Maximum and DOE DCG Values

